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Conference Abstract

LIFE RIPARIAS Early Alert: Using GBIF-mediated data to better manage invasive alien species

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Abstract

Invasive alien species represent one of the major threats to biodiversity. Prevention is better than cure, but once invasive species get established, early management interventions are important to prevent further damage to nature and increasing management costs. Managers need to be informed as swiftly as possible when invasive species pop up in their area. Moreover, an effective response also requires information on species in neighbouring areas. This way, managers can anticipate recolonisation and coordinate the response across higher spatial scales. Open data are indispensible to efficiently organize such early detection of and rapid response to invasive species.

Here, we present LIFE RIPARIAS Early Alert, a new open source tool that aggregates data from diverse sources and sends tailored e-mail alerts to managers. The tool focusses on the project area of the EU co-funded project LIFE RIPARIAS (Reaching Integrated and Prompt Action in Response to Invasive Alien Species, LIFE19 NAT/BE/000953), which aims to improve dataflows for the management of invasive alien species in river basins across regional administrative borders in Belgium.

Data on invasive alien species in Belgium are scattered across a multitude of sources, including project surveys, official monitoring schemes, scientific projects and citizen science reporting portals. We facilitated the standardization and publication of these sources as open datasets to the Global Biodiversity Information Facility (GBIF). The early alert tool then harvests these observations from GBIF, visualizes them on a map as well as

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in table view, with their exact coordinates and a link to the original record. The tool allows for date range filtering and the selection of newly reported (and published) observations through a simple intuitive user interface. Users can create e-mail alerts to be notified of new observations for their species group(s), area(s) or source dataset(s) of interest. Currently, only observations from LIFE RIPARIAS target species (Branquart et al. 2022)—equally published as a checklist on GBIF—are displayed. These include non-native crayfish, invasive aquatic plants and a range of high-impact alert list species that should not yet occur in the area but will be rapidly removed should they arrive.

The tool is currently being tested by the Belgian managerial community. In time, we hope to increase both the taxonomic scope as well as the number of sources. To our knowledge the RIPARIAS early alert tool is one of the first of its kind in Europe. It is unique in displaying data from multiple data sources at the highest spatial resolution, considering the species from the European Union Invasive Species Regulation (European Commission 2019) and actively promoting and supporting data owners to publish their data openly.

Keywords

early warning, EDRR, IAS Regulation, notification, open data, open source

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Initial draft: TA; software development: NN; conceptualization: NN, TA, BD, DO, PD; funding acquisition: TA, PD; project administration: DO; data curation: LR, DO, PD; testing and feedback: TA, BD, DO, PD, data providers.

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